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AUTHOR Powers, Joyce
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ABSTRACT

An examination focuses on several instances in which consonant mutation, whereby the initial consonant of a word or constituent undergoes morphophonological changes, occurs in standard literary Welsh. The syntactic and morphological means by which these mutations take place are considered, with emphasis on how an account of these mutations fits into the modular theory of grammar. The possibility that these mutations are the result of subcategorization or agreement is rejected, and it is concluded that the mutations that appear on the NP objects of Ps are the result of syntactic government; this analysis depends on the margin feature to correctly place mutations. Government is not the correct explanation for mutations triggered by genitive markers. An analysis of the these markers as phrasal affixes that require special syntactic branching and which govern mutations is rejected. These markers are instead edge-located inflections that serve as agreement markers and are associated with mutations. (DJD)

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Joyce Powers

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Anne Miller and Joyce Powers
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ON THE GOVERNMENT OF MUTATION IN WELSH*

Joyce Powers
The Ohio State University

1. **Introduction.** Among the most well-known and most puzzling facts about the Welsh language is the phenomenon of consonant mutation. In certain environments--syntactic, morphosyntactic, or lexical--the initial consonant of a word or constituent will undergo certain morphonological changes (outlined in section 2 below). I will discuss a few of the instances in which mutation takes place in standard literary Welsh: on the NP objects of certain prepositions, and on nouns and non-finite verbs following certain genitive markers. I will consider the syntactic and morphological means by which these mutations take place--specifically, how an account of these mutations can fit into the highly modular theory of grammar proposed in Zwicky (1986a). At issue are the kinds of mechanisms by which these mutations are triggered, and where in the grammar these mechanisms operate.

The organization of the grammar described by Zwicky (1986a) is pictured in (1), and his principle of Component Ordering is given in (2). Of these components, I will be concerned only with syntax, shape, and morphonology. For the syntax, I assume the framework of Generalized Phrase Structure Grammar, as set out in Gazdar et al. (1985). I incorporate into this framework the enrichments concerning government discussed in Zwicky (1986b). This notion of government--not the same as the Government and Binding sort--involves the determination by a functor of inflectionally realized features on an argument. The shape component includes conditions which specify details about the phonological shape of words. These details are not determined in the lexicon, but rather are the result of some external trigger (for instance, the choice of English *an* as the form of the definite article prevocalically, rather than *a*, the default form). Finally, the morphonological component contains nonautomatic rules of phonology.

(1) SYNTAX - LIAISON - SHAPE - MORPHONOLOGY - READJUSTMENT - AUTPHONOLOGY
(2) Component Ordering: The application of a rule in one component C in (1) precedes the application of any rule in a component following C in (1).

I argue below that the appropriate analysis of the mutation appearing on prepositional objects involves syntactic government, but that such an analysis is unsatisfactory for the mutations triggered by 'genitive pronouns'. Instead, I argue (following Lasersohn (1985)) that these 'pronouns' are actually agreement affixes, and that they trigger morphonological rules of mutation on the material to which they affix. Finally, I consider the

type of affix to which these 'pronouns' belong, and the mechanisms required for locating them at the edge of a constituent.

2. **About mutation.** The problem of how mutations are determined is a complex one, and it is likely that there are no simple generalizations covering all instances of mutation. In some cases, a constituent is realized in its mutated form because of a particular word with which it is in construction (or simply because it follows that word). In other cases, mutation on a constituent appears to result from its position immediately following a phrasal category--almost any phrasal category, in fact (Harlow 1981 fn. 18; 1986). In other instances, mutation seems to be an inflectional marker realizing morphosyntactic case features (Zwicky 1984, 1986a). In still other cases, mutation may be the result of non-canonical word or constituent order; for example, a subject NP is mutated when it is separated from its verb.

The picture is further complicated by the existence of different kinds of mutation. The basic form of a word in Welsh is called the *radical*. The radical inarguably corresponds to the underlying phonological form of a word, but this form is subject to the various morphonological operations of mutation. *Soft mutation* is the most common of the mutations, but there are also *nasal* and *spirant* varieties. In Welsh orthography, the mutations are as in (3), below.<1> (Slots on the chart left blank indicate there is no effect of mutation on the relevant radicals; '-' indicates that the radical consonant is deleted by mutation.)

(3)	radical	c	p	t	g	b	d	m	ll	rh
	soft	g	b	d	-	f	dd	f	l	r
	nasal	ngh	mh	nh	ng	m	n			
	spirant	ch	ph	th						

In addition, 'aspiration' causes a vowel to be preceded by [h] following certain pronouns.

3. **The facts.** Here I present data illustrating the appearance of mutation following certain prepositions and pronouns.

3.1. **Mutation on prepositional objects.** Below are a few examples of prepositions and the mutations they trigger. Note in (6) that the mutation appears on the first segment of the NP constituent following the P, even if that segment isn't part of the head noun. (The radical form of *ryw* in (6a) is *rhyw*; of *nheg* in (6b), *teg*.)

(4) Ps triggering:
- a. the radical: *er* 'for', *rhag* 'before'
- b. soft mutation: *ar* 'on', *i* 'to'
- c. nasal mutation: *yn* 'in'
- d. spirant mutation: *tua* 'towards', *gyda* 'together with'

(5) a. *er Caerdydd* 'for Cardiff'
b. *i Gaerdydd* 'to Cardiff'
c. *yng Nghaerdydd* 'in Cardiff'
d. *tua Chaerdydd* 'towards Cardiff'

(6) a. *o ryw siop arbennig* 'from some special shop'
from some shop special

b. *yn nheg dywydd Mehefin*<2> 'in June's fair weather'
in fair weather June

The information about what mutation a preposition triggers clearly must be listed in the lexicon. In section 4 I discuss what form this information about mutation takes and how mutation comes to be realized constituent-initially.

3.2. **Mutation following genitive markers.** I begin with a general discussion of these so-called pronouns in 3.2.1; I return to them in 4.2.3.2, where I adopt the view that they are best analyzed not as real pronouns after all. In 3.2.2 I illustrate their occurrence with nouns and in 3.2.3, with non-finite verbs.

3.2.1. **The markers.** The various pronoun paradigms of Welsh include those given in (7). I present them under their traditional labels of 'prefixed', 'infixed', and 'affixed'. The first two groups are also traditionally called 'genitive pronouns'; I will refer to them as 'genitive markers'. (The affixed pronouns of the third column, which are true pronouns, will not be the focus of much attention in this paper.) The superscript letters following some of the markers indicate the mutation which follows those pronouns (Soft Mutation, Nasal, Spirant, and/or Aspiration). Unsuperscripted forms are always followed by the radical. This is a notational device which is not intended to have any theoretical significance. (See Watkins (1977) for a thorough description of Welsh pronouns, from which much of this section is drawn.)

(7)

	'prefixed'	'infixed'	'affixed'
1sg	fy^{N}	'm^{A}	i, fi
2sg	dy^{SM}	'th^{SM}	di, ti
3sg m	ei^{SM}	'i^{SM}, 'w^{SM}	ef
f	ei^{S,A}	'i^{S,A}, 'w^{S,A}	hi
1pl	ein^{A}	'n^{A}	ni
2pl	eich	'ch	chwi
3 pl	eu^{A}	'u^{A}, 'w^{A}	hwy

The next sections will illustrate the uses of these forms; for now I simply note that the genitive markers precede nouns and verb-nouns, and affixed pronouns optionally follow (and so do not mutate) them.

As the chart in (7) shows, the mutation triggered by one of the genitive markers (in the first two columns) is quite unpredictable. Markers sharing the same morphosyntactic features need not trigger the same mutation, as the 1sg forms show. Furthermore, markers having identical phonological forms do not necessarily trigger the same mutations, as the 3sg forms show.

The choice between a prefixed and an infixed form is partly phonologically and partly lexically motivated. In the third person singular and all plurals, the infixed forms follow vowels and diphthongs (excepting those ending in *-w*). The third person marker *'w* is always and only used following the preposition *i* 'to'. In the first and second person singular, the infixed forms appear only after certain V-final prepositions and conjunctions.

3.2.2. **The markers in NPs.** Nouns in Welsh may have a possessor which is expressed by a following NP, as in (8). The possessor may instead be expressed by a genitive marker preceding the head noun, as in (9). An affixed pronoun agreeing with the genitive marker in person, number and gender optionally follows.

(8) a. *llyfr y dyn* 'the man's book'
book the man

b. *cath Gwen* 'Gwen's cat'
cat Gwen

(9) a. *ei lyfr (ef)* 'his book'
his book (he)

b. *ei chath (hi)* 'her cat'
her cat (she)

The head daughter of NP in phrases like this is N'. (10) illustrates that it is not necessarily N° (as Awbery 1976 assumes), and (11) shows that it cannot be another NP. (12) shows that these possessor-possessed sequences are NPs.

(10) *ei dri hen lyfr (ef)* 'his three old books'
his three old books (he)

(11) **ei y llyfr (ef)* *'his the book'
his the book (he)

(12) **yr ei lyfr (ef)* *'the his book'
the his book (he)

3.2.3. **The markers with non-finite verbs.** The object of a nonfinite verb in a periphrastic sentence behaves just as the

above-illustrated possessor NPs do. If the object is a full NP (as in (13)), it follows the nonfinite verb. If the object is not a full NP, a genitive marker precedes and an affixed pronoun optionally follows (as in (14)).

(13) *Mae'r dyn wedi gweld y ci.* 'The man saw the dog.'
is-the man after seeing the dog

(14) *Mae'r dyn wedi ei weld (ef).* 'The man saw him/it.'
is-the man after his seeing (he)

4. **Analyzing the data.** How is it, after all, that the grammar causes the right mutation (or none) to show up in the right place? In his analysis of the determination of German adjective declensions by classes of determiners, Zwicky (1986b) considers subcategorization, agreement, and government as possible mechanisms responsible for picking out the appropriate declensions. For the appearance of the mutations explained above I consider the same range of possibilities in sec. 4.1, 4.2, and 4.3, and in 4.4 I conclude that some of the mutations are the result of morphonological operations associated with a morphological rule of phrasal inflection.

4.1. **Mutation as agreement.** In Welsh, verbs agree with their subjects, some prepositions agree with their objects<3>, and in traditional written Welsh, adjectives agree with the nouns they modify. Awbery's (1976) account of mutation following prepositions and genitive pronouns implicitly assumes that these mutations are also instances of agreement, since the transformational rules she proposes copy the feature [+αmutation] from one constituent onto another.

An approach such as this has two problems, however. First, the result of an agreement rule would be that Ps and NPs, N's and pronouns, and pronouns and non-finite verbs share the feature [+αmutation], but only one out of each pair of constituents will ever realize that feature. Zwicky (1986b) points out the unacceptability of having the HFC and the CAP distribute features that will never be realized on all of the items carrying them. Zwicky (1987a:32) also argues that 'silent features' should never be head features and thus never distributed by the HFC; a further consequence is that these non-head features will be unaffected by the CAP and so cannot participate in grammatical agreement.

Second, the direction of determination of these mutations is not that of agreement. Keenan (1974) observed that functors may agree with arguments. In many languages determiners agree with their head nouns; in some languages verbs agree with their object NPs; in Welsh some prepositions agree with their object NPs. The opposite, however, doesn't occur, so we don't want to say that Welsh prepositions may both agree with and determine agreement on their objects, and so on.

4.2. **Mutation as subcategorization.** The other sort of syntactic cooccurrence restriction available in the theory of

Gazdar et al. is subcategorization. Once again, however, there are reasons to claim that the appearance of (non-)mutated NPs, N's, and non-finite verbs with particular Ps and pronouns is not due to subcategorization.

First, once again the directionality of determination would be wrong. In subcategorization, the sisters of the head determine the subclass to which the lexical head belongs. In the case of prepositional object mutation, however, we want to be able to say that the P (i.e. the head) determines the form of the NP it will occur with. In the cases involving genitive markers, the lexical head noun or non-finite verb is not even a sister to the marker. In fact, an adjective (sister to the N or V, daughter to N' or V') may intervene between the marker and the head, as in (15). In this case the adjective will be mutated by the marker if it begins with a mutable consonant, as in (15b) (the radical of *wir* is *gwir*; *ẁyn* in (15a) is an unmutated form).

(15) a. *ein ẁyn gyfeillion*<4> 'our gentle friends'
our gentle friends

b. *ei wir weld*<4> 'truly seeing him'
him true seeing

Second, subcategorization is not cut out to do a job like this. It determines not the inflectional forms of cooccurring sisters, but only the sorts of sisters that may cooccur. However, there is reason to believe that mutation features (determining the presence or absence of mutation, and which type appears) do serve to mark inflectional categories. Zwicky (1984), for instance, proposes that the soft mutation which appears on the objects of finite verbs is the realization of accusative case. Subcategorization is not an appropriate mechanism for selecting which mutated or unmutated form of a phrasal constituent may appear with a sister lexical item.

Finally, subcategorization involves a whole set of sister constituents; for example, certain verbs in English are subcategorized to appear with two NPs and and optional PP (*sold Lucy a book for five dollars*). These instances of mutation are different, however. Only one constituent appears with mutation on it by virtue of being in construction with a preposition or pronoun.

4.3. **Mutation as government.** In government, a functor determines properties of an argument. For example, direct objects of verbs in German are by default assigned the accusative case, but certain verbs govern the dative or genitive case on their objects. Such verbs are lexically marked with a value for the feature [GOVCAT]; this head feature points to a government principle in the syntax which results in the correct case-assignment onto the object of the verb.

4.3.1. **Prepositional objects.** I propose to analyze prepositional object mutation as the result of government. Two additional assumptions, however, need to be made in order to do

so. First, I assume (following Zwicky 1986a) the following Feature Specification Defaults:

(16) a. [MUT:-] b. [N:+]⊃[MUT:+] c. [MUT:+]⊃[SOFT]

As with any defaults, the specific overrides the more general. Thus words in Welsh are by default unmutated, except for Ns. Both of these defaults may be overridden by other principles. When mutation appears, by default it is realized as soft mutation; the other mutations must be specified somehow.

But there is still an important fact that must be handled. As illustrated earlier in (6), it is not the head noun of the NP object of a preposition that bears the mutation, but the first segment of the NP constituent. Nevis (1986) introduces features which refer to the margins of constituents, namely [FIRST] and [LAST]; I assume that these are foot features. These take morphosyntactic features as values, and are correctly positioned by the following LP rules (Nevis p. 87):

(17) a. X < [LAST:a] b. [FIRST:a] < X

The FSD in (16b) is not quite right, then; it needs to be able to say (as Zwicky 1986a does) that the default value of [MUT] for the initial words in [N:+] constituents is [+]. Using the feature [FIRST] will accomplish this:

(16) b'. [N:+]⊃[FIRST:[MUT:+]]

The rest of the prepositional object story is straightforward. Ps can be classed into four government categories, the members of which will bear the appropriate [GOVCAT] feature-value pair. These feature values act as indices to particular government principles, as follows:

(18) a. Ps marked [GOVCAT:x] govern the feature [MUT:-] on their objects.
b. Ps marked [GOVCAT:y] govern the feature [MUT: NASAL] on their objects.
c. Ps marked [GOVCAT:z] govern the feature [MUT: SPIR] on their objects.

(18 a-c) correspond to the groups of Ps exemplified earlier in (4a, c, d). Note that Ps triggering soft mutation do so by default, and so nothing else needs to be said about them.

4.2.3.2. **Genitive marker-triggered mutation.** Now I consider (and then reject) an analysis of the mutations on N's and non-finite verbs following genitive markers as another instance of government. On such an analysis, a marker would carry a [GOVCAT] feature value, like Ps in sec. 4.3.1.

First, however, it is necessary to take another look at these markers. They are standardly known as genitive *pronouns*;

however, I will be accepting the analysis of Lasersohn (1985), in which these items are not treated as pronouns per se. Briefly, Lasersohn concludes that these markers are actually agreement affixes. Assuming these forms are agreement markers enables him to make generalizations about finite verbs and the fact that they agree with pronominal subject NPs, but not nonpronominal ones; about prepositions and the fact that they agree with only pronominal object NPs; and the fact that the genitive markers never cooccur with nonpronominal NPs. In other words, the agreement affix appears on nouns and non-finite verbs just when agreement affixes appear on finite verbs and inflectable prepositions--when a pronoun (or gap) is the thing being agreed with.

It is telling that the traditional labels for these genitive markers are 'prefixed' and 'infixed'; in assigning these names, grammarians recognized that these items don't act as independent words. For instance, the preposed genitive markers may never receive stress; only the postposed non-genitive pronouns may be stressed. The genitive markers have been called 'clitics' by Sproat (1985), Borsley (1983, 1984), and Harlow (1981). However, at least two of Zwicky and Pullum (1983)'s criteria distinguishing simple clitics and affixes point to an affixal analysis of these Welsh facts:

(19) A. Clitics can exhibit a low degree of selection with respect to their hosts, while affixes exhibit a high degree of selection with respect to their stems.
C. Morphophonological idiosyncrasies are more characteristic of affixed words than of clitic groups. (pp. 503-504)

These criteria are designed to apply to the usual case of affixes attaching to stems; I argue below that we are dealing with an affix which attaches not to words, but to phrases. This difference aside, however, the genitive markers of Welsh meet the above criteria for affixhood. At first it might appear that they attach promiscuously, since they don't necessarily attach to N°s (as illustrated in (15)), but in fact they are rather choosy after all. They always attach to N' or V'[FIN:-] constituents. As for (C), these markers are associated with the very idiosyncratic morphonological processes of mutation.

Nevis replaces the notion of 'clitic' with the classifications *bound word* and *phrasal affix*. We have already seen that an affixal analysis is appropriate here. Zwicky (1987b) lists characteristics which phrasal affixes may have; our markers have all or most of these. I remain uncommitted on the first characteristic: phrasal affixes may have a phonological shape that is unavailable for free words. Other pronoun paradigms show at least some overlap in phonological form with the markers considered here, but I don't want to address the issue of whether or not these other pronouns are free words. Second, Zwicky says that they are not distributed syntactically like any free word;

we have seen in (8), (9), (13) and (14) that the positioning of possessor NPs and DOs of nonfinite verbs are unlike that of the affixal forms. Third, phrasal affixes are located outside regular inflectional affixes. This is irrelevant to the Welsh data insofar as inflectional affixes are always suffixal; however, as mentioned earlier, Zwicky (1984, 1986a) assumes that mutations are inflectional. Since the markers occur outside mutation, however, the third characteristic is present. Fourth, phrasal affixes are always realized affixally and not processually; we can say that the markers have processual (i.e. mutational) effects, but are not themselves realized this way. Finally, phrasal affixes may attach promiscuously to nearly any syntactic category. In light of the discussion above, this seems to be a problem; I just claimed that these markers were *not* promiscuous. In fact, there is no conflict here after all. The apparent promiscuity of attachment is a result of attachment to the edge of a nonlexical constituent, even though the category of that constituent remains constant--that is, the particular words to which these markers attach may seem arbitrarily chosen, but they are always whatever comes first in N' or V'[FIN:-].

In Nevis's analysis, phrasal affixes (such as the English possessive marker *'s*) are realized in the syntactic component, rather than in the morphology as inflectional affixes are. Besides the LP rules given above in (17), Nevis proposes the following ID rule for phrasal affixes:

(20) <10, X ---> X, [MARGIN:A]>
[MARGIN:A]

Possessor-possessed NPs can be generated by (17), (20), and the following rules.<5>

(21) ID rules
a. <11, NP --> H', NP>
b. <12, NP --> (Det,) H'>
c. <13, N' --> (AP,) H>

(22) LP rules
a. N' < NP
b. Det < N'
c. AP < N

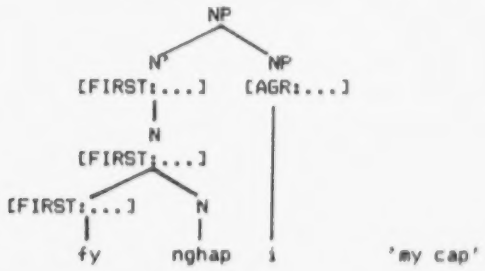
The feature [PRO:+] may be instantiated on the daughter NP in rule (21a); if so, it may be marked [NULL:+]. This accounts for the optional appearance of a pronoun in, e.g., (9a). The CAP ensures that the head N' will agree with this postposed pronoun in number and person (and gender, in the 3sg). The lack of agreement between N' and a nonpronominal possessor NP is due to the FCR in (23), from Lasersohn.

(23) FCR 24: [AGR:NP]⊃[AGR:[PRO:+]]

[FIRST] is a foot feature which takes a set of AGR features as its value. Thus a filled-out version of rule (21a) could be as shown in (24), which helps build the branchings in (25). [FIRST] being a foot feature, the FFP ensures that it is shared by the appropriate mother-daughter pairs in (25). Being an edge feature, it will guarantee that the phrasal affix will end up on whatever comes first in the N' constituent, as in (15).

(24) NP --> N'[FIRST:[AGR:[NUM:-, PERS:1, PRO:+]]],
NP[AGR:[NUM:-, PERS:1, PRO:+]]

(25)



A very similar analysis of nonfinite verbs could be proposed; it would require ID and LP rules and an FCR that were entirely parallel to those just given for NPs. The phrasal affix ID and LP rules would work as they are.

I now return to the issue of the government of mutation. I assume that each syntactic feature bundle which gets realized as a phrasal affix is associated with some [GOVCAT] feature, just as prepositions are; these would serve as indices to government principles in exactly the same fashion as that outlined in section 4.3.1.

So it seems that all of the mutation phenomena I have considered are due to syntactic government. It is not clear, however, that we want to say this in the case of the phrasal affixes/genitive markers. On closer inspection, several problems arise.

First, it's questionable whether phrasal affixes can act as governors. On one hand, they are distributed and realized in much the same way as grammatical function words such as English dative *to*, at least on some analyses; see Nevis p. 86. Clearly we want grammatical function words to be able to be governors; perhaps if phrasal affixes are so much like function words they should have this property too. However, it was earlier argued that these markers are *affixes*, and not *words*; Nevis observes that 'lexemes may act as governors, affixes may not' (p. 25).

Furthermore, as stated in section 4.3, government is the determination of properties of an argument by a functor. Verbs and their objects, and nouns and their possessors will not stand

in the same functor-argument relationships. There is no way to conclude that the DO argument of a verb governs mutation (or anything) on that verb. We could perhaps keep the mutation-as-government analysis for NPs, and find a new explanation for nonfinite VPs. That would be an unfortunate move, however; there are so many similarities between these two constructions that we want to provide a very similar analysis for both.

Finally, the notion 'phrasal affix' has come under fire as a theoretical distinction. Zwicky (1987b) concludes that English possessive *'s* is not a phrasal affix, and Kanerva (1987) also provides an alternative to Nevis' analysis of Finnish possessive suffixes as phrasal affixes. No more examples which seem to require analysis as phrasal affixes remain; it appears that we may exclude this notion from the theory. That is a desirable result: the theory is significantly simpler for not having to include special syntactic branchings for phrasal affixes.

4.4. A solution. Zwicky (1987b:137) observes: 'Nothing in Nevis's framework requires that a feature distributed from a phrasal category to a lexical category must be associated with a branching like the [one licensed by my (20)]...Without a branching of this sort, such a feature (whether located at an edge or on the head) is simply realized via morphological rules, as an inflection (which might be realized affixally or processually).' He concludes that English *'s* is an edge inflection; its morphosyntactic features are distributed by the syntax, but it is realized suffixally just like all English inflection, in the 'realization rules' of the shape component. He also points out that Welsh constituent-initial consonant mutations may be analyzable as edge inflections.

I suggest the following analysis, then. Preposed genitive markers are edge inflections. Their features are distributed syntactically very much as outlined in the previous section, except that no special syntactic branching as in (20) exists. In the shape component, realization rules provide the appropriate prefixal forms--except in certain instances. As outlined in 3.2.1, infixed forms appear in particular environments, in place of the default prefixed forms. Shape conditions provide these special forms, overriding the output of the realization rules where necessary. After the shape component (including the shape conditions) is morphonology. Here mutation is realized (or the radical is preserved) as rules of allomorphy associated with these edge inflections. Note that this accounts for the fact mentioned in 3.2.1 that not just the features and not just the form of a marker determine mutation, but both. In the theory of grammar assumed here, by the time the morphonology component is reached, all the necessary information is available.

Zwicky (1987b:142) says that 'in this framework, realization rules are distinguished from the operations associated with them...a single realization rule might be associated with two or more operations'. Such is the case with these Welsh edge inflections. The rule of inflection uses two operations:

prefixation of phonological material, and the appearance of mutation. This is comparable to, say, the rule suffixing *-ity* onto words in English: one operation adds /-Iti/ to a base, another laxes the preceding vowel if possible, and a third causes 'velar softening'. Not all words in *-ity* show the effects of velar softening, of course; similarly, not all consonants in Welsh can be mutated. The operation simply applies where it can.

5. To conclude. I have examined a few instances of initial consonant mutation in Welsh, and have proposed means of accounting for them in a restrictive, modular theory of grammar which includes a monostratal syntax. I have rejected the possibility that these mutations are the result of subcategorization or agreement. I concluded that the mutations which appear on the NP objects of Ps are the result of syntactic government; this analysis depends on the margin feature to correctly place mutations. Government is not the right explanation for mutations triggered by genitive markers, however; I entertained and rejected an analysis of these markers as phrasal affixes which require a special syntactic branching and which govern mutations. These markers are instead edge-located inflections which serve as agreement markers and which are associated with mutations.

FOOTNOTES

‡I am grateful to Arnold Zwicky, Peter Lasersohn, and Joel Nevis for their advice and assistance. Any shortcomings are my own responsibility.

1. ⟨p, b, t, d, g, m, n, l⟩ all have their usual values. ⟨c⟩ =/k/, ⟨f⟩ =/v/, ⟨dd⟩ =/ð/, ⟨ng⟩ =/ŋ/, ⟨ch⟩ =/x/, ⟨ph⟩ =/f/, and ⟨th⟩ =/θ/. ⟨ll⟩ is a voiceless unilateral fricative. ⟨r⟩ is a trilled or flapped alveolar /r/ and ⟨rh⟩ is its voiceless aspirated counterpart. ⟨ngh, mh, nh⟩ are voiceless nasals.
2. *Dywydd* is also a mutated form (soft, from radical *tywydd*); this mutation is the result of the fact that an adjective precedes.
3. This isn't quite true; verbs agree with pronominal (optionally null) subjects, but appear in their default 3sg form with nonpronominal NPs. The same is true of inflectable prepositions and their objects.
4. As in fn. 2, *gyfeillion* and *weld* are in their soft mutation forms because of the preceding adjective. The mutation triggered by the pronoun, however, is never realized on the noun or nonfinite verb if something intervenes.
5. There's a wrinkle here. We need to mark the NP daughter in rule (21a) with the feature [CASE:GEN] to explain the fact that the NP as a whole will not be mutated. The FSDs proposed earlier predict that an NP will be soft-mutated; this is overridden, however, when an NP is in genitive case (cf. Zwicky 1984, 1986a). The problem is that if this NP is realized as a pronoun, we have little reason to say it's a genitive pronoun. The 'affixed',

postposed pronouns have been traditionally known as nominative. Perhaps the solution is to include the [CASE:GEN] feature in the rule, and to assume that the postnominal pronouns are ambiguous or lexically unspecified as for case.

REFERENCES

Awbery, G.M. 1976. *The syntax of Welsh: a transformational study of the passive.* Cambridge University Press, Cambridge.

Borsley, 1983. A Welsh agreement process and the status of VP and S. In Gazdar, Gerald, Ewan Klein and Geoffrey K. Pullum, eds. 1983. *Order, concord and constituency.* Foris, Dordrecht.

Borsley, 1984. VP complements: evidence from Welsh. *J. Linguistics* 20:277-302.

Gazdar, Gerald, Ewan Klein, Geoffrey Pullum and Ivan Sag. 1985. *Generalized phrase structure grammar.* Harvard University Press, Cambridge.

Harlow, Stephen. 1981. Government and relativization in Celtic. In Heny, F. (ed.), *Binding and filtering.* Croom Helm, London.

Harlow, Stephen. 1986. The syntax of Welsh soft mutation. Talk delivered at the Kentucky Foreign Language Conference, Lexington, KY.

Kanerva, Jonni. 1987. Morphological integrity and syntax: The evidence from Finnish possessive suffixes. *Language* 63.3. 498-521.

Keenan, Edward. 1974. The functional principle: generalizing the notion 'subject of'. CLS 10.298-309.

Lasersohn, Peter. 1985. Unifying Welsh agreement. ms.

Nevis, Joel. 1986. *Finnish particle clitics and general clitic theory.* OSU WPL 33.

Sproat, Richard. 1985. Welsh syntax and VSO structure. *NLLT* 3.2.173-216.

Watkins, T. Arwyn. 1977. The Welsh personal pronoun. *Word* 28.146-165.

Zwicky, Arnold. 1984. Welsh soft mutation and the case of object NPs. CLS 20.387-402.

Zwicky, Arnold. 1986a. The general case: Basic form versus default form. BLS 12.305-314.

Zwicky, Arnold. 1986b. German adjective agreement in GPSG. *Linguistics* 24.5.

Zwicky, Arnold. 1987a. The Slovenian orphan accusative, component interfaces, and covert grammatical categories. OSU WPL 35.29-38.

Zwicky, Arnold. 1987b. Supressing the Zs. *J. Linguistics* 23.133-148.

Zwicky, Arnold M. and Geoffrey K. Pullum. 1983. Cliticization vs. inflection: English *n't*. *Language* 59.3.502-513.